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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,187	04/26/2000	Jin Li	2000.034000	9865

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EXAMINER	
BRINEY III, WALTER F	
ART UNIT	**PAPER NUMBER**
2644	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/558,187	Applicant(s) LI ET AL.	
	Examiner Walter F Briney III	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 10-12, 21-23, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Schopfer et al. (US Patent 5,636,273).

Claim 1 is limited to **a method of switch hook detection for a host transceiver**. Schopfer discloses a ring trip detection (column 1, lines 55-63) (figure 5) (i.e. **switch hook detection**) circuit. The circuit receives sensed current (I1, I2) taken from a subscriber line (figure 4, elements VA, VB) (i.e. **receiving a signal over a connection from a telephonic device**). Schopfer discloses selecting variable paths with different transient response times (figure 5, elements 510, 530) in order to detect the hook status of the subscriber line (column 4, line 51-column 5, line 6) (i.e. **adjusting a transient response time of the host transceiver configured to receive the signal**). Schopfer further discloses that the ring trip filter (120) low pass filters the input signal for detection of DC current, the (column 7, lines 40-60) (i.e. **and determining a switch hook state of the telephonic device based on a DC component of the signal...**), the output of the filter only being relevant if the first path is not active (i.e. **in response to adjusting at least a portion of the transient response time**). Schopfer discloses that the paths are selected based on a signal level comparison to a threshold

(Vrgfd>50) (i.e. **determining if the signal is greater than a first preselected value** and **adjusting a transient response time in response to determining that the signal is greater than the first preselected value**). Therefore, Schopfer anticipates all limitations of the claim.

Claim 2 is limited to **the method of claim 1**, as covered by Schopfer. Schopfer discloses a DSP (figure 5, element 120) used for ring trip detection of a **subscriber line**, the input is a differential current (I1-I2), the DSP includes a filter for canceling AC ring components leaving only a DC component for hook detection (column 7, lines 28-60) (i.e. **the DC component of the signal comprises a signal proportional to a DC current flowing from the subscriber line**). Therefore, Schopfer anticipates all limitations of the claim.

Claim 3 is limited to **the method of claim 1**, as covered by Schopfer. Schopfer discloses a DSP (figure 5, element 120) used for ring trip detection. The output of the comparator circuit is coupled to a 104 Msec (i.e. **first preselected interval delay**) persistence timer (530) (i.e. **a counter**). Therefore, Schopfer anticipates all limitations of the claim.

Claim 4 is limited in part to the same limitations found in claim 3, as covered by Schopfer, however, claim 4 includes further limitations not yet discussed. Schopfer discloses only indicating an off hook status if the measured subscriber loop current (figure 5, element I1-I2) is above a threshold of the comparator circuit (120) for a time equal to or greater than the delay of the persistence timer (column 2, lines 59-65) (i.e. **determining if the DC current is greater than a second preselected value in**

response to the delay of the first preselected interval). Therefore, Schopfer anticipates all limitations of the claim.

Claim 10 is limited to **a method of switch hook detection for a host transceiver**. Schopfer discloses a ring trip detection (column 1, lines 55-63) (figure 5) (i.e. **switch hook detection**) circuit. The circuit receives sensed current (I1, I2) taken from a subscriber line (figure 4, elements VA, VB) (i.e. **receiving a signal over a connection from a telephonic device**). Schopfer discloses a comparator circuit that detects a ring trip (figure 5, element 120) (i.e. **detecting a transient in the signal**). Schopfer further discloses that the comparison must be held for 104 mSec (530) (i.e. **waiting, using a counter, a first preselected interval in response to detecting the transient**). Ring trip is declared if the DC current of the signal indicates ring trip for the entire time (column 2, lines 59-65) (i.e. **and determining a switch hook state of the telephonic device based on a DC component of the signal in response to waiting the first preselected interval**). Therefore, Schopfer anticipates all limitations of the claim.

Claim 11 includes the same limitations introduced in claim 2, and is rejected for the same reasons presented therein.

Claim 12 is limited to **the method of claim 11**, as covered by Schopfer. Schopfer discloses that the ring trip filter and threshold comparator implemented in the DSP (figure 5, element 120) of the ring trip detection circuit tends to overshoot, thus allowing transients into the comparator circuit, the persistence timer provides sufficient time to block transients that cannot be blocked by the low pass filter alone (column 4,

lines 31-39) (i.e. **wherein the first preselected interval is equal or greater than a settling time of a low-pass filter employed to determine the switch hook state**). Therefore, Schopfer anticipates all limitations of the claim.

Claims 21-23 include the same limitations introduced in claims 1, 2, and 4, respectively, and are rejected for the same reasons presented therein.

Claim 28 includes the same limitations introduced in claim 1 and is rejected for the same reasons presented therein.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-9, 13-20, and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schopfer in view of Zhou (US Patent 5,583,934).

Claim 5 is limited to **the method of claim 2**, as covered by Schopfer. Schopfer discloses measuring the voltage on the line to determine the length of time needed for hook state detection (abstract). There is no indication that the measurements are made for determining whether devices are in saturation. Therefore, Schopfer anticipates all limitations of the claim with the exception **wherein determining if the signal is greater than the first preselected value comprises determining if a portion of the host transceiver is in a saturation state**. Zhou teaches another method of adjusting

transient response time of a SLIC/SLAC (i.e. **host transceiver**) by way of DC level control (abstract). Zhou teaches that introduction of a DTMF generator will artificially shift DC levels by changing the line impedance (column 1, line 60-column 2, line 13). This results in placing components in dangerous **saturation states**. Zhou detects the possibility of saturation by comparing the received signal from a subscriber line to a threshold (figure 4, element 414). The threshold performs adjustment of a DC feedback loop, the feedback loop is comprised of an accumulator (416), the controllable step size (408, 410) indicating the **transient response time** (column 7, lines 38-62). It would have been obvious to one of ordinary skill to include the DC level control as taught by Zhou for the purpose of reducing the chance of saturating transceiver circuitry.

Claim 6 is limited to **the method of claim 5**, as covered by Schopfer in view of Zhou. Zhou teaches generating incremental steps for canceling DC (column 7, lines 55-62). The weight of the quantizer (0, +2, or –2) determines how the transceiver reacts to a transient (i.e. **wherein adjusting the transient response time of the host transceiver includes increasing a bandwidth of a DC cancellation loop adapted to receive the signal**). Therefore, Schopfer in view of Zhou makes obvious all limitations of the claim.

Claim 7 is limited to **the method of claim 6**, as covered by Schopfer in view of Zhou. As shown in claim 6, Zhou teaches an accumulator (416), which is a discrete representation of an **integrator**. It performs a sum of time delayed samples, where each new sample is weighted by the quantizer circuit (408), inherently **increasing a step size of the integrator** inherently **increases the bandwidth of the DC**

cancellation loop. Therefore, Schopfer in view of Zhou makes obvious all limitations of the claim.

Claim 8 is limited to **the method of claim 7**, as covered by Schopfer in view of Zhou. Zhou teaches that when the residual DC level is below a third threshold (i.e. the logical inverse of the function |IN| >= 0.2) (i.e. **in response to determining that the signal is less than a third preselected value...**) (column 8, lines 65-column 9, line 12) a log '1' is applied to the AND gate enabling the removal of the time delay (i.e. **decreasing the bandwidth of the DC cancellation loop**) (column 9, lines 41-56) in the accumulator thus causing a decrease in the residual DC removed by the accumulator. Therefore, Schopfer in view of Zhou makes obvious all limitations of the claim.

Claim 9 is limited to **the method of claim 8**, as covered by Schopfer in view of Zhou. Zhou teaches that when the input signal is within the acceptable range of the second threshold (i.e. **the third preselected value is an indication...**) (figure 4, element 430), the input is operating within the dynamic range of the receiver (i.e. **that the host transceiver is no longer in the saturation state**) (column 10, lines 31-36). Therefore, Schopfer in view of Zhou makes obvious all limitations of the claim.

Claim 13 is limited to **an apparatus**. Schopfer discloses a SLIC that receives signals from a subscriber line pair (figure 4, elements VA, VB). The signals are passed through two sense resistors (RSR1, RSR2) (i.e. **first logic capable of receiving a signal over a connection from a telephonic device**). Schopfer discloses ring trip circuitry (figure 5, element 120) (i.e. **fourth logic capable of determining a switch**

hook state...based on a DC component of the signal...) that signals a ring trip detection in the event that a DC current indicates ring trip for a 104 mSec period (530) (i.e. **in response to waiting a preselected time interval based on a counter**). Schopfer discloses ring trip detection, but makes no mention of how to adjust the performance of the SLIC in the presence of line transients. Therefore, Schopfer anticipates all limitations of the claim with the exception of **second logic capable of determining if the signal is greater than a first preselected value** and **third logic configured to receive the signal, the third logic being capable of adjusting a transient response time of at least one of a low pass filter and integrator in response to determining that the signal is greater than the first preselected value**. Zhou teaches a method of adjusting transient response time of a SLIC/SLAC (i.e. **host transceiver**) by way of DC level control (abstract). Zhou teaches that introduction of a DTMF generator will artificially shift DC levels by changing the line impedance (column 1, line 60-column 2, line 13). This results in placing components in dangerous saturation states. Zhou detects the possibility of saturation by comparing the received signal from a subscriber line to a threshold (figure 4, element 414) (i.e. **second logic capable of determining if the signal is greater than a first preselected threshold**). The threshold starts an adjustment process for a DC feedback loop, the feedback loop is comprised of an accumulator (416) (i.e. **integrator**), the controllable step size (408, 410) indicating the **transient response time** (column 7, lines 38-62). It would have been obvious to one of ordinary skill to include the DC level control as taught by Zhou for the purpose of reducing the chance of saturating transceiver circuitry.

Claim 14 includes the same limitations introduced in claim 2, and is rejected for the same reasons presented therein.

Claim 15 is limited to **the apparatus of claim 13**, as covered by Schopfer in view of Zhou. Zhou teaches adjusting the quantized input (column 7, lines 38-62) (i.e. **gain**) of the integrator. It is clear that the weight of the input determines how fast the accumulators output changes, thus effecting the **transient response time**. Therefore, Schopfer in view of Zhou makes obvious all limitations of the claim.

Claims 16-20 include the same limitations introduced in claims 4, 5, and 7-9, respectively, and are rejected for the same reasons presented therein.

Claims 24-27 include the same limitations introduced in claims 5 and 7-9, respectively, and are rejected for the same reasons presented therein.

Response to Arguments

Applicant's arguments with respect to claims 1-4 and 10-28, filed 26 April 2004, have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 5-9, filed 26 April 2004, have been fully considered but they are not persuasive.

With respect to claim 5, the applicant alleges that Zhou does not teach **determining if a portion of the host transceiver is in a saturation state**; the examiner respectfully disagrees. Zhou teaches creating a replica transmit signal for analysis. By comparing it to the threshold ½ GX_{PEAK} it can be ascertained that the devices are saturated or in danger thereof. In further support of the examiner's

conclusion, the applicant's own disclosure states that the threshold for saturation detection is ½ of the reference voltage of the SLIC/SLAC (application, paper 1, page 16, third paragraph).

With respect to claim 7, the applicant alleges that Zhou does not teach **increasing the step size of an integrator**; the examiner respectfully disagrees. As shown in the new rejection of claim 7, necessitated by amendment, Zhou teaches an accumulator (figure 4, element 416), which is a discrete representation of an **integrator**. It performs a sum of time delayed samples, where each new sample is weighted by the quantizer circuit (408), inherently **increasing a step size of the integrator** inherently **increases the bandwidth of the DC cancellation loop**.

Claims 6, 8, and 9 depend variously from claims 5 and 7, therefore, the above response is directed toward them as well. Clearly, reliance on Zhou is maintained for the same reasons.

The applicant's amendments with respect to claims 16 and 23 have sufficiently overcome the previous 35 U.S.C. 112 second paragraph rejections.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB
7/9/04

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER